

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of controlling the rate of data transmission from a source of data to a user via a communications link, wherein processing means are provided to generate a signal representing a rate request which will be used in determining the rate at which data will be transmitted from the source to the user, said processing means generating the signal by:

obtaining a congestion charge on said communications link,
selecting a value indicative of the user's willingness to pay for a given transmission data rate,

determining the rate to be requested where x_n is the data transmission rate (bits per second) as calculated at an n th iteration; and x_{n+1} is the rate to be determined; $x_n * \mu$ is the charge to the user indicative of amount of congestion and is the product of x_n and congestion charge μ ; w is the willingness to pay ; δ is the time elapsed between two iterations; κ is a constant gain parameter; and $\xi(x_i)$ is a reactivity parameter which varies during the data transmission to control the speed with which said rate requests are adapted in response to changing congestion conditions as a function of the indication of a difference between the user's willingness to pay and a congestion cost which is the product of congestion charge and a previously determined data transmission rate, said difference being weighted by a variable parameter, the processing means thereafter communicating the signal to the source of data and the rate of the data transmission from the data source to the user then being controlled on the basis of the signal.

2. (Currently Amended) A method according to claim 1, wherein said ~~variable~~ reactivity parameter assumes discrete values.

3. (Currently Amended) A method according to claim 1, wherein the value of said ~~variable reactivity~~ parameter varies continuously.

4. Cancelled.

5. (Currently Amended) A method according to claim 1, wherein the value of said ~~variable reactivity~~ parameter varies in accordance with the difference between the user's willingness to pay and the indication of the amount of congestion.

6. (Currently Amended) A method according to claim 1, wherein said rate to be requested is determined using the following iterative equation:

$$\text{---} x_{n+1} = x_n + \text{delta} * \text{kappa} * x_n^{\xi} (w - x_n * \mu) \text{---}$$

~~where x_n is the data transmission rate (bits per second) as calculated at an n th iteration; and x_{n+1} is the rate to be determined; $x_n * \mu$ is the charge to the user indicative of amount of congestion and is the product of x_n and congestion charge μ ; w is the willingness to pay; delta is the time elapsed between two iterations; kappa is a constant gain parameter; and ξ (x_i) is a the value of said reactivity parameter whose value is set depending on the indication of congestion or the user's willingness to pay.~~

7. (Original) A method according to claim 5, wherein if the difference between the indication of the amount of congestion and the user's willingness to pay falls within a predetermined range a first data rate is requested, and if the difference between the indication of the amount of congestion and the user's willingness to pay falls outside the predetermined range a second different data rate is requested.

8. (Currently Amended) A method according to claim ~~6-5~~ wherein said parameter ξ is a step function assuming the value 0 for values of said difference larger than a threshold value, and assuming the value 1 for values of said difference smaller than said threshold value.

9. (Currently Amended) A method according to claim 7-1 wherein obtaining a congestion charge said step of providing an indication of amount of congestion includes determining a marking rate m of incoming data transmitted on said communications link and wherein said congestion charge is determined from said marking rate.

10. (Currently Amended) A rate controller for controlling the rate of data transmission from a source to a user via a communications link, said rate controller including processing means for generating a signal representing a rate request which will be used in determining the rate at which data will be transmitted from the source to the user, said processing means including:

means for obtaining a congestion charge for said communications link,

selecting means for selecting a value indicative of the user's willingness to pay for a given transmission data rate,

determining means ~~for determining the rate to be requested as a function of the~~ adapted to determine said rate to be requested using the following iterative equation:

$$x_{n+1} = x_n + \text{delta} * \text{kappa} * x_n^{\xi} (w - x_n * \mu)$$

where x_n is the data transmission rate (bits per second) as calculated at an n th iteration and x_{n+1} is the rate to be determined; $x_n * \mu$ is the charge to the user indicative of amount of congestion and is the product of x_n and congestion charge μ ; w is the willingness to pay selected by selecting means in response to a determined transmission rate; delta is the time elapsed between two iterations; kappa is a constant gain parameter; and ξ (ξ) is a reactivity parameter which varies during the data transmission to control the speed with which said rate requests are adapted in response to changing congestion ~~difference between the user's willingness to pay and a congestion cost which is the product of a congestion charge and a previously determined data transmission rate, said difference being weighted by a variable parameter, and~~

means for communicating the signal to the source, wherein the rate of the data transmission from the source to the user is controlled on the basis of the signal.

11. (Currently Amended) A rate controller according to claim 10, wherein said determining means is adapted to, determine the difference between the user's willingness to pay and the indication of the amount of congestion, and vary the value of the ~~variable reactivity~~ parameter in accordance with the difference.

12. (Currently Amended) A rate controller according to claim ~~4-10~~10, wherein said determining means determines a first rate to be requested if said difference between the indication of the amount of congestion and said selected value falls within a predetermined range, and a second different data rate to be requested if the difference between the indication of the amount of congestion and the value falls outside the predetermined range.

13. (Currently Amended) A rate controller according to claim 10, wherein ~~said determining means is adapted to determine said rate to be requested using the following iterative equation:~~

$$\text{---} x_{n+1} = x_n + \text{delta} * \text{kappa} * x_n^{\xi} (w - x_n * \mu) \text{---}$$

~~where x_n is the data transmission rate (bits per second) as calculated at an nth iteration; and x_{n+1} is the rate to be determined; $x_n * \mu$ is the charge to the user indicative of amount of congestion and is the product of x_n and congestion charge μ ; w is the willingness to pay selected by selecting means in response to a determined transmission rate; delta is the time elapsed between two iterations; kappa is a constant gain parameter; and ξ (ξ) is a parameter whose the value of said reactivity parameter is set depending on the indication of congestion or the user's willingness to pay.~~

14. (Currently Amended) A rate controller according to claim 10, wherein said means for obtaining ~~an indication of the amount of a~~ congestion charge comprises metering means for determining a marking rate of incoming data transmitted on said communications link.

15. (Currently Amended) A rate controller according to claim 11, wherein said ~~variable reactivity~~ parameter is a step function assuming the value 0 for values of said difference larger than a threshold value, and assuming the value 1 for values of said difference smaller than said threshold value.

16.-19. Cancelled.

20. (Previously Presented) A computer readable medium encoded with computer executable instructions executable by the processor to perform the steps of claim 1.